



VOL. 36. NO. 26, DECEMBER 21



**LAB NEWS**

**Christmas 1984**





PEGGY JACKSON, Christmas cover artist.

**On Our Cover**

**Artist Paints Quail, Catches Snowflakes**

The LAB NEWS Christmas cover reproduces a watercolor painted by Peggy Jackson (husband Dave is the Public Information Officer at DOE/AL). Their home is a short distance west of the Rio Grande where, during the winter, they feed the quail, pheasants, and other wild birds that come into their backyard. Peggy calls her painting "Home Quail" and explains that it is an impression from her experiences with the birds.

An unusual aspect of this painting is that the snowflakes are real. "In the winter we have a good view of the Sandias and the winter storms," she explains. "One day last January, I noticed these big, beautiful snowflakes drifting down. I hurried to my studio and quickly applied a blue wash to the upper part of the paper. Then I took it outside and let the snowflakes fall on it." The result is a delicate touch by nature.

Watercolor is Peggy's favorite medium, although she also paints in acrylic, oil, and pastel. "I've been painting with watercolors for about eight years," she says. "Using watercolors is spontaneous — things hap-

Murphy's Law: Anything that can go wrong will go wrong.  
 Hawkinson's Corollary: Especially at Christmas.  
 In the struggle between you and your Christmas budget, bet on the budget.  
 In the spirit of the season, your local government will remember you—with a property tax bill.  
 The Credit Union and all the financial advisors will urge you to spend the few dollars you managed to save for Christmas on prepaying your mortgage.  
 By Dec. 20 you'll have heard "Little Drummer Boy" so many times you'll want to break his little drum sticks.  
 The recipe for becoming a legendary host or hostess is identical to the one for a nervous breakdown.  
 A boor will crash your Christmas party—feat first.  
 The family members that seldom speak a civil word to you all year will, during the holidays, not speak a civil word to you.  
 Unwelcome guests will take forever to depart. This is

the famous "much adieu about nothing" law.  
 If you're heading off for Christmas dinner, your battery will die. If you're having guests over, it will be your furnace. Don't drink while driving. (You might spill some.)  
 When motoring with children, at least one of them will demand a potty break exactly halfway between any two rest areas.  
 The only way to achieve lasting peace on earth is to unplug the stereo.  
 Christmas is when you discover the true meaning of "Batteries Not Included."  
 Santa Claus's reindeer will use your rooftop as a rest stop.  
 The After-Christmas sales will lower prices to what they were in October.  
 What you believe are memories of great old-fashioned Christmases are in truth only expert creations of Madison Avenue.  
 Skiers: Always choose the right ski to match your ability. (Choose the left ski to match your outfit.) ●BH

\* \* \*

Feliz Navidad a todos, y a todos buenas noches. (Merry Christmas to all, and to all a good night.)

pen." She has a BA in art education from UNM, has done graduate study in art at NMIMT, the University of Nevada — Las Vegas, University of Oklahoma, and Colima, Mexico. She has taught art in Albuquerque, Santa Fe, and Socorro schools, and was an instructor for the Las Vegas (Nev.) Art League-sponsored community art classes.

Peggy has won awards at the New Mexico State Fair and the NM Arts and Crafts Fair as well as numerous awards while she was living in Nevada. She is a member of the Albuquerque Artists Association and the NM Water Color Society, and exhibits her work at the Albuquerque Artists Studio and Gallery.

**Livermore Newcomers**

- Livermore**  
 Timothy Cody (8234)  
 Alice Johnson (8183)  
 Grant Taylor (8234)
- California**  
 Wallace Johnson (8255)      Clements  
 Rebecca Gifford (8022)      Dublin  
 Evelyn Baca (8022)      Pleasanton  
 Lori Joseph (8236)      Pleasanton  
 Cheryl Boynton (8022)      San Ramon  
 Evelyn Chaney (8022)      Turlock
- Nevada**  
 Sallie Fadda (8022)
- New Mexico**  
 Charles Rudberg (8025)
- Wisconsin**  
 Charles Neveu (8432)



*Published Fortnightly on Fridays*

**SANDIA NATIONAL LABORATORIES**

*An Equal Opportunity Employer*

ALBUQUERQUE, NEW MEXICO  
 LIVERMORE, CALIFORNIA  
 TONOPAH, NEVADA  
 AMARILLO, TEXAS

Sandia National Laboratories is operated by Sandia Corporation, a subsidiary of AT&T Technologies, Inc., and a prime contractor to the U.S. Department of Energy.

Editorial Offices in Albuquerque, 87185  
 Phone 505/844-1053 FTS 844-1053  
 In Livermore 415/422-2447 FTS 532-2447

BRUCE HAWKINSON, Editor  
 DON GRAHAM, Assistant Editor  
 NORMA TAYLOR, Writer  
 LOUIS ERNE, Photographer  
 GERSE MARTINEZ, Assistant Photographer  
 BARRY SCHRADER, Livermore Reporter

*Member, International Association of Business Communicators*



DECEMBER RETIREES AT LIVERMORE are from left Bob (8176) and Marcy Noble (8024), Ken Shriver (8163), and Mearle Hicks (8163).



## Team Investigates Secrets of Pulse Combustion

Pulse combustors are more efficient and less polluting than conventional steady-state combustors. The question is "Why?"

Pulse combustion involves successive, extremely short-lived fuel burns that self-ignite and are self-aspirating. Far more common is steady-state combustion, like that in a gas-burning water heater. (A diesel engine, which self-ignites once the engine is warmed up, is similar to a pulsed combustor.)

Sandia Livermore now has a cooperative research program with Toshiba Corporation of Japan that aims to gain information that will help industry improve the design process for pulse combustors. The program was initiated through the Combustion Research Facility (CRF) but involves expertise from Toshiba as well. The research team uses advanced laser diagnostics to gather data on the behavior of fuel as it burns inside a pulse combustor.

Pulse combustors are from 33 to 70 percent more efficient than their steady-state counterparts (in terms of the percentage of stored chemical energy that is converted to useful thermal energy during combustion) — and that's in spite of the "cut and try" approach used to design the combustors. Pulse combustion also produces less nitric oxide than does steady-state combustion.

The principles of pulse combustion have been known for many years. Pulse combustors were used in the early 20th century, and they propelled German V-1 "buzz bombs" during World War II. Because a pulse combustor develops a pressure boost, researchers working in the 1940s and 50s believed they could be used as a means of propulsion, possibly for aircraft or rockets.

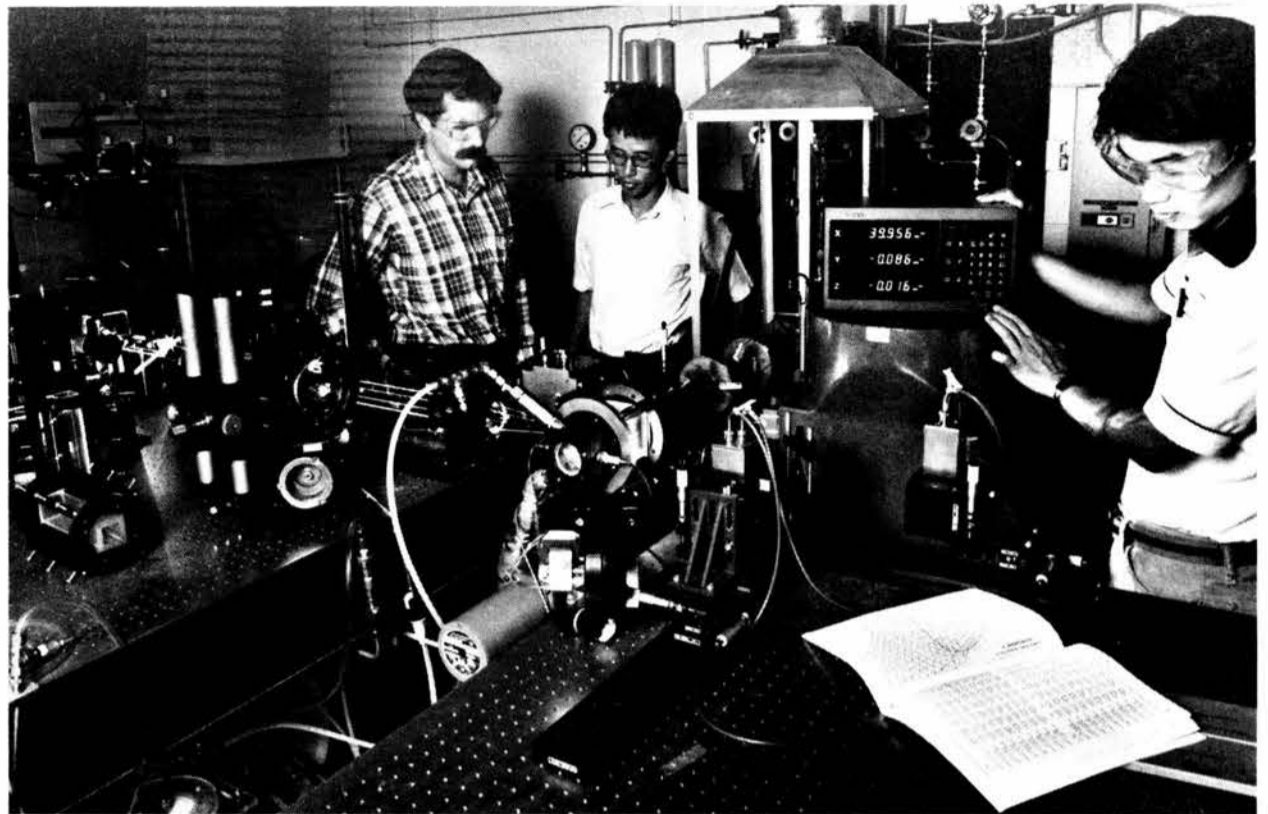
Interest in pulse combustion waned as jet engine technology developed and improved, and then increased as fossil fuel prices began their rapid rise in the 1970s. Currently the focus is on their use in water and space heaters and in forced air furnaces. Several companies in Japan and the U.S. market such units.

Pulse combustors also could be incorporated into many other applications, researchers believe. Such uses include coal or wood combustors; chemical reactors; coal gasification; gas turbines; electric, sonar, and noise generators; catalysis; and high-temperature heat pumps and heat exchangers.

A typical valved pulse combustor is relatively simple. It includes one-way valves that permit air and fuel to enter a mixing/combustion chamber through separate ports and an exhaust tube that connects to the combustion chamber.

During each combustion cycle, small squirts of fuel and air enter the combustion chamber through the valves. A spark plug initiates the first cycle, but after that the combustor, for reasons not clearly understood, becomes self-igniting and self-aspirating. Pressures created during the expansion phase of each cycle close the valves.

Then, as combustion gases flow rapidly through the exhaust tube, a partial vacuum



PULSED COMBUSTOR experiment may lead to an understanding of why such combustors are more efficient and less polluting than conventional combustion methods. Principal investigators include Jay Keller (8362), left, and Kazuo Saito (right) of Toshiba Corporation, Japan. Ken Kishimoto of Kokushikan University in Tokyo (center) was also involved with the research this fall. Taz Bramlette (8362; not shown) is a third principal investigator.



## SANDIA LIVERMORE NEWS

VOL. 36 NO. 26 SANDIA NATIONAL LABORATORIES DECEMBER 21, 1984

occurs. This pressure drop reopens the fuel and air valves, and a fresh charge of fuel and air enters the combustion chamber where the process repeats itself. Pulse frequency depends on the length of the exhaust tube and the movement of acoustic waves inside the combustion chamber. Sandia's research combustor pulses 50 times a second; however, 300 pulses a second is also a realistic frequency.

"In many respects our early research has raised more questions than it has answered," says Jay Keller of Combustion Applications Division 8362. "We're beginning to suspect why pulse combustors are efficient and clean burning. But those suspicions must still be supported by research findings."

Kazuo Saito of Toshiba is collaborating with Jay on the research. Also joining them this fall was Ken Kishimoto, a faculty member at Kokushikan University in Tokyo.

The research team is seeking to explain why the heat transfer coefficient for pulse combustors is higher than for steady-state combustors and to learn more about the pulse combustor's pressure boost, which

permits furnaces to perform adequately without the aid of a blower or a vertical flue.

### Supervisory Appointment



GEORGE FISK to supervisor of Combustion Chemistry Division 8353, effective Nov. 16.

George joined Sandia Albuquerque in 1974 to work on the development of new lasers for the laser fusion program. He has also studied different applications of lasers for chemical and

physical processes. His most recent assignment has been looking at lasers for detonating high explosives. Before coming to Sandia he was an assistant professor in the chemistry department of Cornell University for six years.

His education includes a BS in chemistry from Rice and a PhD in physical chemistry from UC Berkeley.

Active in the American Physical Society, George also enjoys bicycling for both commuting and pleasure. He also owns three sports cars in various stages of restoration.

He and his wife Mary Frances have a 20-year-old daughter at the University of New Mexico and a 17-year-old son in high school. The family plans to move to the Livermore area after the holidays.

### Take Note

This issue introduces a listing of new employees, which will appear on the Livermore page monthly. Any new employee who is overlooked in this list should call the LAB NEWS at 2-2447.



## **Nuclear Reactor Safety Components Tested at Sandia's Power Tower**



INSTALLING COMPONENTS on a test bed at the 220-ft. level at Sandia's Power Tower are Vince Dandini and John Aragon of Safety Systems Assessment Division 6445. The components, safety equipment used in nuclear reactor power plants, are being subjected to thermal fluxes up to 160 suns. The tests, part of the Hydrogen Burn Survival Program, are being conducted for NRC.

A study of nuclear reactor safety components has brought a new use to the Power Tower — the giant heliostats are being used to simulate the thermal environment that might occur under special conditions in a nuclear power plant accident. Under investigation is the performance of safety components (such as cables, transmitters, switches, solenoid valves, and other electrical hardware) in a hydrogen burn that might occur as the result of an accident.

"We are simulating the thermal fluxes similar to those that safety components might see in a postulated degraded core accident if a significant amount of fuel cladding reacted with water," says Vince Dandini of Safety Systems Assessment Division 6445, test project engineer. "This cladding-water reaction produces the bulk of the hydrogen in the type of accident we are concerned with."

Two series of tests are planned. The first series, recently completed, simulated the thermal environment resulting from a 13 percent (volume) hydrogen burn contained in a 52-foot-diameter spherical vessel, a test conducted by the Electric Power Research Institute at NTS.

"This first series augments the data gathered by the EPRI tests, particularly component performance data," Vince says.

The second series of tests, scheduled for January, will start with the same simulation as the NTS tests. Heat flux levels used in this first simulation will serve as a base — later tests will increase the heat flux in increments (50 percent each test) until three times the base case heat flux levels (as established by the first test) is reached. Component performance will be monitored during each test and compared with performance during the base case exposure.

"This incremental testing is done to investigate the limits of aged and un-aged component performance," Vince says. "This testing serves to reduce uncertainties about component behavior when the accident scenario is changed. If the components

survive our 'overtesting' beyond the base case, and we have the data to substantiate that fact, then we can use the data to evaluate the performance of aged components vs. the same, but un-aged, components. (The components will be thermally aged by subjecting them to temperatures up to 125° C for 1830 hours.)

In addition to the thermal fluxes the components are subjected to, the current tests include steam sprayed into the test area to further simulate the accident scenario.

During the tests, the components are mounted on a stand behind a thermal shield, which functions as a shutter. The components are preheated and functioning — carrying electronic signals, monitoring pressure, sensing and relaying environmental data. Steam from a portable generator is sprayed into the test area. Up to 25 heliostats (which create a thermal environment that would be created by hot gases having temperatures up to 1900° F) are prefocused on the protective shutter. The shutter is then pulled away and the full thermal flux hits the component.

Heat flux levels used in the recently completed first series of tests were determined from experimental results obtained in the EPRI tests conducted at NTS. These heat flux levels will serve as the base case for the second series of tests.

An extensive instrumentation array records the test parameters and the performance data from the safety components.

Results from the tests may be used to verify analytical models of component behavior and possibly to suggest modifications of these models.

"The tests are going well," Vince says. "The Power Tower is well suited for this kind of testing. The Division 6222 people working with us have been great — Cheryl Maxwell, test engineer; Phil Brooks, heliostat control operator; Bob Edgar, heliostat selection; and Dave Johnson, data acquisition."

### **Attention Retirees Too**

## **Savings Plans, IRAs, and Taxes**

Employees who are participants in the Bell Systems Savings Plan and are contemplating the distribution or withdrawal of plan proceeds should be aware that the procedure selected to receive the distribution may affect their tax liability. New Mexico state income tax law does not always parallel federal income tax treatment for lump sum distributions, such as those made when a Sandia employee elects to receive a distribution or withdrawal under the Bell System Savings Plans.

In a recent letter from Vickie Fisher of the New Mexico Taxation & Revenue Department to State Representative John McMullan, Fisher noted that New Mexico tax

law requires that it "tax lump sum distributions, to the extent that such distributions are included in the federal adjusted gross income tax and taxed for federal purposes." According to Fisher, the special federal income tax averaging provisions, which allow an employee to spread the tax liability for a savings plan distribution over a number of years, are not permitted under the current New Mexico income tax laws.

With respect to Bell System Savings Plan distributions, this means that an employee may have significantly different tax liabilities for Federal and New Mexico purposes. Although Sandia is not in a position to give tax advice to its individual employees,

there may be alternatives that might lessen the state tax burden upon an individual employee electing to receive a savings plan distribution. Fisher points out in her letter that a rollover of the distribution plan proceeds into an Individual Retirement Account "will be taxed consistent with federal policies concerning the taxability of such distributions."

Since tax consequences affect individual employees differently and are always subject to legislative change, employees contemplating a distribution or withdrawal may wish to consult with a tax advisor or attorney to discuss specific questions of a technical nature in regard to their own individual circumstances.



## Supervisory Appointments

JOHN WISNIEWSKI to supervisor of IC Layout and Verification Division 2113, effective Nov. 1.

John first joined the Labs in November 1976 as a member of the technical staff in the applied math department. He left Sandia in August 1978 to complete his education and returned in December 1980. Since then, he has been with the Integrated Circuit Design Department 2110.

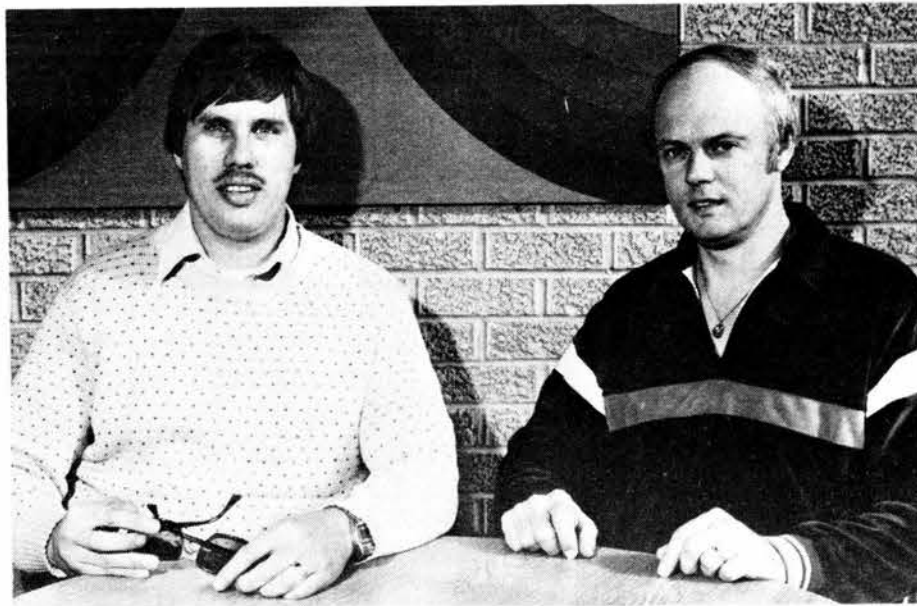
John received a BS in math and a BS in psychology from the University of Washington, his MS in computer science from Washington State University, and his PhD in computer science from the University of Illinois. He's a member of the Society for Industrial and Applied Mathematics and the Association for Computing Machinery. John is active in the local chapter of SIGNUM, a special interest mathematics group, and is treasurer of the NM Hunter/Jumper Association. John, his wife Jo-Anne, and their infant son live in Edgewood.

\* \* \*

TERRY MASON to supervisor of Tube Section 7476-2, effective Nov. 11.

Since joining the Labs in February 1967, Terry has worked in the Process Development Laboratories Department 7470, primarily in the tube development lab.

Terry received his certificate in



JOHN WISNIEWSKI (2113)  
and TERRY MASON  
(7476-2)

electronics from the North American Technical Institute in Albuquerque. Most of his off-the-job activities are concerned with sprint car racing. Terry, his wife Patricia, and their two daughters live in the NE heights.

\* \* \*

DAVID BARNES to supervisor of Design Development Division 5313, effective Nov. 16.

Since joining Sandia in June 1968 as a staff member, Dave has worked with telemetry design and development. For the past two years, he's been project engineer for the W81 telemetry program.

Dave received a BS in EE from Lamar University (Beaumont, Texas) and his MS in EE from UNM. He enjoys photography, woodworking, and camping. He and his wife



DAVE BARNES (5313)

Camellia have two sons; they live in NE Albuquerque.

## Pension Increase for Retirees Starts Jan. 1

In action this week, Sandia's Board of Directors voted a special increase for retirees under the Retirement Income Plan, an action that follows an increase voted earlier for the Pension Security Plan. To be eligible, a retiree or annuitant must have elected to participate in the pension plan as revised in July 1975 and have been receiving a pension on Dec. 1, 1984.

The increase, which becomes effective Jan. 1, 1985, is a maximum of 5 percent for the Retirement Income Plan and 4.5 percent for the Pension Security Plan. Both increases are subject to approval by the Internal Revenue Service. DOE approval has been obtained for the Pension Security Plan increase and has been requested for the Retirement Income Plan increase. It is Sandia's intention to pay for the increases effective Jan. 1 without awaiting IRS approval. If the IRS does not approve, the increases will have to be discontinued for future pension payments.

For those retirees under the Retirement Income Plan, the increase will be paid retroactively to Jan. 1 when DOE approval is granted.

Here is the way the Retirement Income Plan works:

For eligible retirees on pension in Oct. 1982 or earlier, the increase will be 5 percent of the pension amount payable on Jan. 1, 1985. For eligible retirees whose pensions were effective after Oct. 1982, the increase will be 0.185 percent for each full month of retirement from the effective date of pension through December 1984. The minimum increase will be 0.185% (one month) and the maximum will be 5% (27 months).

An example of how the special increase

will be calculated for those under the Retirement Income Plan:

A retiree with a monthly pension of \$800 on Jan. 1, 1985, who retired on or before Sept. 30, 1982, will receive an increase of \$40 (5.0% x \$800), resulting in a new monthly pension amount of \$840. For anyone who retired after Sept. 1982, the increase will be prorated at the rate of 0.185% for each full month of retirement through December 1984.

For the Pension Security Plan, the increase works this way:

For eligible retirees on pension in January 1983 or earlier, the increase will be 4.5% of the pension amount payable on Jan. 1, 1985. For eligible retirees whose pensions were effective after January 1983, the increase will be 0.1875% for each full month of retirement from the effective date of pension through December 1984. The minimum increase will be 0.1875% (one month) and the maximum will be 4.5% (24 months).

An example of how the special increase will be calculated for those under the Pension Security Plan:

A retiree with a monthly pension of \$700 on Jan. 1, 1985, who retired on or before Dec. 31, 1982, will receive an increase of \$31.50 (4.5% of \$700), resulting in a new monthly pension of \$731.50. For anyone who retired after December 1982, the increase will be prorated at the rate of 0.1875% for each full month of retirement through December 1984.

The last special increase granted retirees under the Retirement Income Plan was effective Oct. 1, 1982, and for those under the Pension Security Plan, Jan. 1, 1983.

All eligible retirees and annuitants are being notified of the new increase by letter.

For those eligible employees and retirees who have worked past age 65, the increase will apply in the same manner to pensions payable at retirement as if they had retired at age 65 instead of continuing to work.

Similarly, for those cases in which a surviving annuitant's pension is currently being paid or the survivor annuity has been elected, the same percentage of increase applicable to a service or disability pension will also apply to the annuitant's pension.

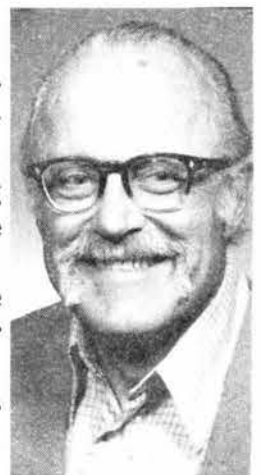
In approving the increase for both retirement plans, the Sandia Board of Directors stated that this special increase was approved in the light of current economic and other relevant conditions and that this action cannot be considered an indicator of future pension changes. Any such decisions regarding pensions will be independent of any past or present actions and will remain at the discretion of the Board of Directors.

## Death

Hal Baxter of Solar Thermal Test Facility 6222 died Dec. 12 in a mountain climbing accident in Mexico. He was 60.

He had worked at the Labs since December 1950.

Survivors include his wife, two daughters, and a son.





## Employees Continue Christmas Projects

'Tis the season once again, and Christmas charity projects at the Labs are moving right along.

\* \* \*

Many Sandians are members of the Albuquerque Breakfast Civitan Club; Ken Hueter (332) is the current president. Members operate a gift wrap booth in Coronado Center each year to raise money for their projects. Among its many other good deeds, the club traditionally supplies Christmas baskets to needy families. Steve Ross (1200A) has received some additional support for this project from the people in the 1200 directorate through donations of clothing, food, and money.

\* \* \*

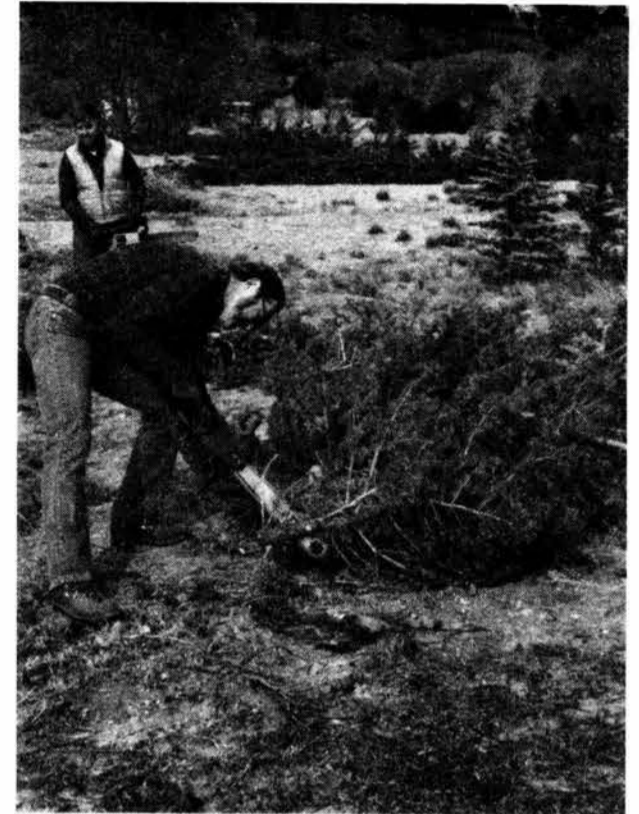
The South Highway 14 Project will help 34 families this year in the villages of Chilili, Escabosa, Torreon, Tajique, Punta, and Manzano. This project has also received some additional support. Admission to the Coronado Club's Kids' Christmas Party was a can of food for the South 14 Project, resulting in two large boxes of canned goods. Jenny Negin (3552) and some friends from the Labs had a ladies' night out, and each participant brought a wrapped Christmas gift for someone on the Project's list of needy. The donation of clothing and toys from numerous Sandians has prompted one of the co-chairmen, Julian Sanchez (3321), to line up a couple of extra volunteer drivers with pickups. A caravan of five loaded vehicles will make the deliveries on Dec. 22. Funds to support this project are raised through sales of Sandia T-shirts and caps, new and used books, Sandia belt buckles, and color aerial photos of the Tech Area, all sold from the LAB NEWS office.

\* \* \*

Don Rohr (7212), chairman of the "Shoes for Kids" drive reports that this 7200 activity is in its 27th year. "This year we hope to provide shoes for over 100 children from the Dolores Gallegos and Mountain View Elementary Schools," Don says. "For many years, the Kinney Shoe Company has given us a generous discount on the shoes, and has done the actual fitting for each child. Once again, Kinney's in Coronado Center is supporting this effort." A line of credit has been established with the store, so that anyone wishing to contribute can send a check payable to "Shoes for Kids" to the Coronado Center Kinney Shoe store.

\* \* \*

Another long-time Christmas charity is the 7600 Directorate Food Basket Drive, in its 26th year. Dave Nichols (7658) chairs the committee this year. He reports that the drive last year broke all records: almost \$1600 was donated by people in 7600. The money was used to purchase gift certificates from Bag & Save grocers; the certificates provided food for 29 families. Dave hopes to do even better this year.



THE ALBUQUERQUE Civitan Breakfast Club cuts Christmas trees and sets up a lot for sale of the trees by the Career Services for the Handicapped. Tree-cutting day is quite an operation — Henry Street (2523), left photo, brings trees to the trimming area where Ken Hueter (332) wields the chain saw. The Christmas tree lot is located at Lomas and Washington NE.



THE SOUTH Highway 14 Project makes its final deliveries to families gathered at the Senior Citizens Center in Manzano. Julian Sanchez (3221, on left) and John Cantwell (3520) were two of the volunteers last year. Thirty-four families in six villages along the 50-mile stretch of South 14 will each receive two boxes of food plus a turkey, in addition to many items of donated clothing, toys, and other gifts.

## Events Calendar

Dec. 27-31, Jan. 4-6 — ACLOA's "Hans Christian Andersen," musical adaptation, 7:15 p.m. on Dec. 28 & 31, 2:15 p.m. matinee only on Dec. 30 & Jan. 6, all other performances at 8:15 p.m., Popejoy, 345-6577.

Dec. 29 — Puppet shows for children by Michael McCormick, 2 & 3 p.m., auditorium, Albuquerque Museum; free tickets available in Museum lobby on day of show.

Dec. 30 — Movietime at the KiMo: Movies by Great Directors, "The Magic Flute," Ingmar Bergman (1975); Jan. 13 — "Fat City," John Houston (1972), 7 p.m., KiMo.

Dec. 31 — New Year's Eve with the NM Symphony Orchestra, 9 p.m. - 2 a.m., Albuquerque Convention Center Ballroom: pops concert, champagne buffet, and dancing; black tie optional, 842-8565.

Jan. 9-20 — NM Repertory Theatre, "The Last Meeting of the Knights of the White Magnolia," Wed. - Sat. 8 p.m., Sat. & Sun. 2 p.m., KiMo, 243-4500.

Jan. 13 — Music at the Museum: Alfredo Lopez, clarinet recital, 3 p.m., Museum of Albuquerque.

Jan. 14 — KiMo Guitar Series: Taj Mahal, blues, 8 p.m., KiMo.

Jan. 15 — The Best of Broadway and International Theatre: "Mummenschanz," European theater of illusion; Jan. 20 — Red Skelton and friends, 8:15 p.m., Popejoy.

Jan. 18-19 — NM Symphony Orchestra, Janina Fialkowska, pianist; Peter Leonard, guest conductor, 8:15 p.m., Popejoy.

## Sympathy

To Theresa Carson (3533) on the death of her father in Albuquerque, Nov. 12.

To Art (6454) and Tom (6223) Key on the death of their father in Albuquerque, Dec. 12.



## Take Note

The Second Symposium on Space Nuclear Power Systems, sponsored by the chemical and nuclear engineering department at UNM and co-sponsored by the American Nuclear Society, will be held in Albuquerque on Jan. 14-16 at the Hilton Inn. The symposium will provide a national forum for sharing of information and transfer of technology among the planners and the potential users of space nuclear power systems. Sessions will cover the following: Missions & Systems, Refractory Metal Alloys, Fuel and Fuel Performance, Energy Conversion, Reactors and Shield, Thermal Management, System Analysis and Testing, Safety and Reliability, and Control, Power Conditioning and Electronics Systems.

A short course on Fundamentals of Space Nuclear Power Systems will be offered in conjunction with the symposium, on Jan. 11-12.

For symposium reservations or information, contact Patricia Quinn (UNM), 277-4600. For short course information, contact course coordinator Mohamed S. El-Genk (UNM), 277-5442.

\*\*\*

A number of Sandians will be volunteers for the Lou Rawls Parade of Stars Telethon to benefit the United Negro College Fund, telecast on Dec. 29 from noon to 6 p.m. on TV Channel 14, and from 10:30 p.m. to 1:30 a.m. on TV Channel 13. The United Negro College Fund's goal this year is to raise \$15 million to help support 42 private black colleges and universities. These institutions provide higher education for not only black students, but for Hispanics, American Indians, and other minorities.

One of the guest hosts for the local segment of the telethon (10:30 p.m.-1:30 a.m.) will be Vernon Koonce (5173).

\*\*\*

The University of Amsterdam's National Institute for Nuclear Physics and High Energy Physics and the Computer Science Department are sponsoring a conference, Computing in High Energy Physics, on June 25-28 in Amsterdam. The conference will emphasize networking, embedded systems, and vector and parallel processing. Summaries of papers proposed for presentation are due by March 15. Conference fees are about \$100 until Jan. 4, \$120 after. LAB NEWS has registration forms, which are due in the Netherlands by Dec. 31.

\*\*\*

Beat the kids up on Christmas morning. That is, rise earlier than they do, and (weather permitting) you'll be rewarded with a spectacular view of the first man-made comet, courtesy of our friends up north, the Los Alamos National Lab. What you'll see if you're up and looking by 5:18 a.m. is "a colorful cosmic display [that] will blossom out as sunlight reacts with 4.5 pounds of barium released from canisters dropped off by a West German satellite orbiting some 70,000 miles in space." First you'll see a glowing yellow-green ball about 1/20th the size of the moon; then purples, pinks, and blues will emerge as the chemical cloud fans out into a football shape; finally, a 5000-mile-long cigar-shaped structure, similar to the tail of a real comet, should develop. The whole show will last

## Patent Awarded

# Spark Gap Switch Is Super Precise

Gordon Boettcher, a DMTS in Neutron Devices and Technology Department 2560, has invented a novel spark gap switch that permits highly repetitive, highly precise voltage breakdowns in ranges from 500 volts to a few kilovolts. The switch is currently being used as an ordnance initiator.

The device includes electrodes that are spaced apart by a ceramic insulating cylinder, defining a spark gap. The electrodes are supported by conductive end caps which, with the insulating cylinder, form a hermetically sealed chamber.

Devices of this type are used in high-current, high-voltage applications to protect components (i.e. energy storage capacitors) from voltage overloads, and to switch current from charged capacitors into output loads. They must remain inactive until the desired breakdown voltage is reached, switch the electrical energy, then return quickly to normal.

It's not a simple task. "Thiokol and Lockheed had a couple of outside contractors working on the gap, but they weren't able to get the precise breakdown they needed," Gordon says. "The application called for a large current, over many hundreds of shots. The other designs couldn't meet this requirement. So the contractors came to Sandia and asked for help."

The production version of the Sandia device operates at 1700 volts (plus or minus 10 percent) for voltage rates of up to 570 volts per millisecond. It allows peak discharge currents up to 3000 amperes from 0.3 microfarad capacitor for more than a thousand operations.

Major innovations in this design are the

---

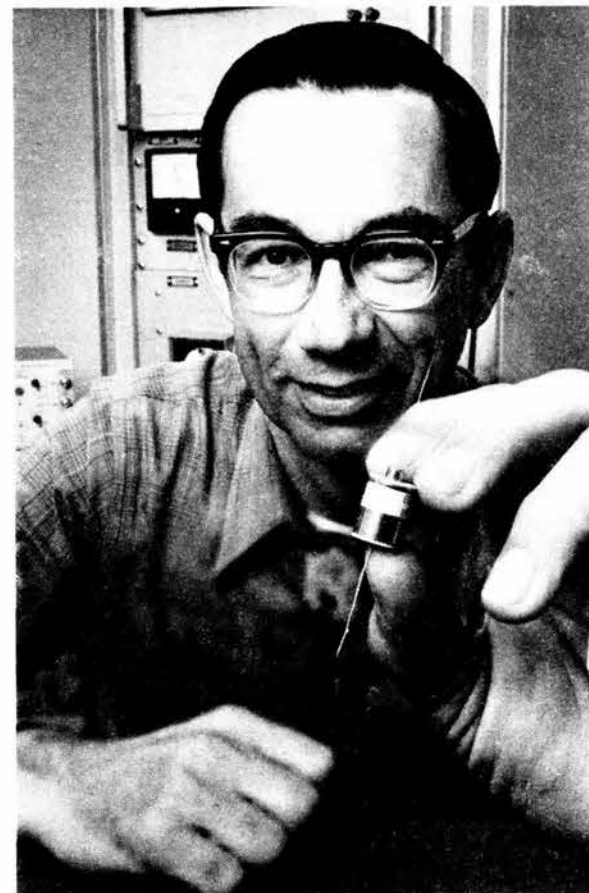
five to ten minutes. To see it, look southeast and about 30 to 40 degrees up from the horizon. (The experiment is designed to provide the first direct measurements of an encounter between a man-made comet and the solar wind.) LANL is interested in photos of the event: use the fastest color film possible, and "exposure time is directly related to the time after the start of the event; for example, 10 seconds after the chemical release, try a 10-second exposure." If you get some good shots, send them to Paul Bernhardt, MS D-466, LANL.

\*\*\*

The next six-week "Freedom From Smoking" clinic sponsored by the American Lung Association begins Jan. 8, meets from 7 to 9 on Tuesdays and costs \$35. Pre-register with the Association on 265-0732.

\*\*\*

Retiring this month and not shown in LAB NEWS photos are Howard Anderson (7474), Eliseo Chavez (2122), Dennis Cordova (3413), Gordon Harvey (5264), Naomi Kelly (3417), Donald McFall (7125), Florencia Valtierra (3612), Elsie Wilkins (3154), Jose Jojola (3613), Francis Statzula (3312), Roy Rogers (3421), and Jim Strascina (5264).



NEW SPARK GAP switch is highly precise. Invented by Gordon Boettcher (DMTS; 2565), the device was recently awarded a patent.

use of xenon fill gas and niobium electrodes, and the inclusion of a radioactive stabilizer, Carbon 14, to aid breakdown. "The rise time up to 1700 volts is 3 milliseconds," explains Gordon. "You can't do that with a field emission starter." In the manufacturing process, amorphous carbon 14 is midway between the two electrodes.

Statistically, one free electron must be available at the cathode surface before the spark gap will break down. This will occur naturally when a cosmic ray enters the device and causes ionization; however, the process is random and therefore imprecise. Carbon 14, an inert material with a long half-life, continuously contributes electrons in the form of low-level beta particle energy, assuring prompt firing with a fast rise time.

Using xenon as a fill gas does away with the problem of electrode deterioration that occurs when gases such as hydrogen or oxygen-nitrogen are used and become reactive in the presence of a high energy electrical discharge. "Xenon is a noble gas and since it is inert it doesn't cause chemical reactions," says Gordon. "You don't have formation of the oxides that cause breakdown problems in other gaps."

The niobium electrodes are refractory material with a much higher melting point than copper or even nickel-cobalt alloys.

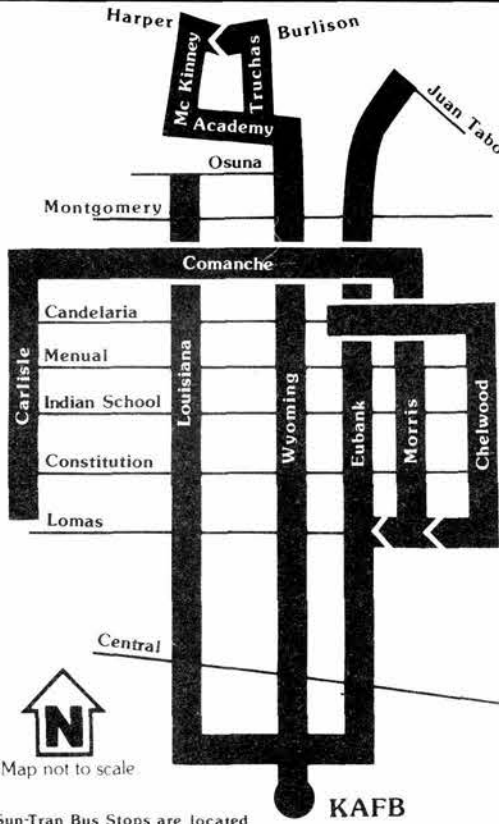
The new spark gap design could see general use in private industry, but Gordon doubts that market preferences will change easily from the present practice of buying relatively inexpensive, frequently replaced devices. He also points out that it would be difficult to convert a conventional spark gap manufacturing line to produce his design. "It would have to be changed significantly to handle production of this design," he said.

Gordon's invention was assigned to the U.S. Department of Energy.

# Sandia Base Trippers

Effective January 7, 1985

## Bus Schedule



For information call:

**\*766-7830**

City of Albuquerque

\*TTY System in use for the hearing impaired.



### Monday - Friday Service.

Times indicated may vary according to traffic conditions.

LOUISIANA-SANDIA	A.M.	P.M.
Osuna & Louisiana	7:05	5:18
Candelaria & Louisiana	7:13	5:08
Winrock	7:21	5:01
Central & Louisiana	7:27	4:55
Gibson & Louisiana	7:30	4:50
D.O.E. H. Street	7:35	4:45
Sandia Base		
Gate #1	7:45	4:40
Gate #10	7:50	4:35

CHELWOOD-SANDIA	A.M.	P.M.
Eubank & Candelaria	7:16	5:20
Chelwood & Candelaria	7:20	5:15
Chelwood & Lomas	7:25	5:07
Eubank & Lomas	7:33	4:56
Eubank & Central	7:39	4:50
Sandia Base		
Gate #6	7:45	4:40
Gate #1	7:50	4:35

WYOMING-SANDIA	A.M.	P.M.
Academy & McKinney	7:05	
Academy & Truchas	7:13	
Montgomery & Wyoming	7:20	
Candelaria & Wyoming	7:24	
Menaul & Wyoming	7:27	
Constitution & Wyoming	7:32	
Lomas & Wyoming	7:34	
Central & Wyoming	7:38	
Sandia Base		
Gate #1	7:45	
Gate #10	7:50	

COMANCHE-SANDIA	A.M.	P.M.
Carlisle & Lomas	6:55	5:32
Carlisle & Comanche	7:00	5:27
San Mateo & Comanche	7:04	5:23
Wyoming & Comanche	7:10	5:17
Eubank & Comanche	7:15	5:12
Morris & Comanche	7:20	5:07
Morris & Lomas	7:30	4:57
Lomas & Eubank	7:33	4:54
Central & Eubank	7:37	4:50
Sandia Base		
Gate #6	7:42	4:40
Gate #1	7:46	4:35
D.O.E. H. Street	7:48	4:32

EUBANK-SANDIA	A.M.	P.M.
Juan Tabo & Eubank	7:16	5:08
Montgomery & Eubank	7:23	5:01
Indian School & Eubank	7:30	4:54
Lomas & Eubank	7:35	4:50
Central & Eubank	7:39	4:45
Sandia Base		
Gate #6	7:45	4:40
Gate #1	7:50	4:35

### Attention, Bus Commuters

#### Wyoming Tripper Schedule Changed

The Sandia/Wyoming tripper bus schedule is being changed on Jan. 7. The afternoon run is being replaced by the #31 Wyoming bus, which will alter its schedule slightly to accommodate the change. Why the change? The #31 and the Sandia buses run within five minutes of each other, so each runs only half full. The change to #31 will occur in the Truchas to Harper area (see the maps and schedule).

\*For evening service see Route 31 schedule.

These routes run at the above times only.

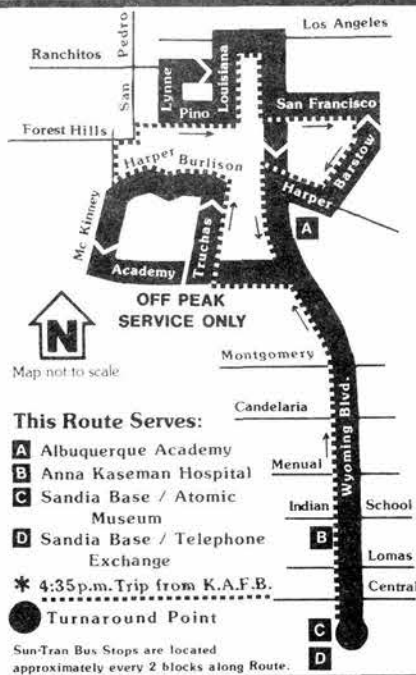
For additional service to KAFB see Route 9 Carlisle-Gibson, Route 31 Wyoming and Route 55 Downtown-KAFB. Certain trips on Routes 31 and 55 run into the Tech Area.

Buses on Wyoming operate every 15 minutes to the Base in the morning and every 15 minutes from the base in the afternoon.

# 31 Wyoming

Effective January 7, 1985

## Bus Schedule



This Route Serves:

- A Albuquerque Academy
- B Anna Kaseman Hospital
- C Sandia Base / Atomic Museum
- D Sandia Base / Telephone Exchange
- \* 4:35 p.m. Trip from K.A.F.B.
- Turnaround Point

For information call:

**\*766-7830**

City of Albuquerque

\*TTY System in use for the hearing impaired.



### Monday - Friday Service

Times indicated may vary according to traffic conditions.

#### Route 31 to Kirtland East

	A.M.										P.M.										*							
Louisiana & Pino	6:14	6:44	7:03	7:14	7:44	8:14	8:44	9:44	10:44	11:44	12:44	1:44	2:44	3:44	4:44	5:14	5:29	5:44	6:14	6:44								
Wyoming Krim	6:18	6:48	7:06	7:18	7:48	8:18	8:48	9:48	10:48	11:48	12:48	1:48	2:48	3:48	4:48	5:18	5:33	5:48	6:18	6:48								
McKinney & Academy								9:16	10:16	11:16	12:16	1:16	2:16	3:16	4:16													
Wyoming & Academy	6:22	6:52	7:07	7:22	7:52	8:22	8:52	9:22	9:52	10:22	10:52	11:22	11:52	12:22	12:52	1:22	1:52	2:22	2:52	3:22	3:52	4:22	4:52	5:22	5:37	5:52	6:22	6:52
Wyoming & Montgomery	6:26	6:56	7:11	7:26	7:56	8:26	8:56	9:26	9:56	10:26	10:56	11:26	11:56	12:26	12:56	1:26	1:56	2:26	2:56	3:26	3:56	4:26	4:56	5:26	5:41	5:56	6:26	6:56
Wyoming & Menaul	6:33	7:03	7:18	7:33	8:03	8:33	9:03	9:33	10:03	10:33	11:03	11:33	12:03	12:33	1:03	1:33	2:03	2:33	3:03	3:33	4:03	4:33	5:03	5:33	5:48	6:03	6:33	7:03
Wyoming & Ind. Schl. Rd.	6:35	7:05	7:20	7:35	8:05	8:35	9:05	9:35	10:05	10:35	11:05	11:35	12:05	12:35	1:05	1:35	2:05	2:35	3:05	3:35	4:05	4:35	5:05	5:35	5:50	6:05	6:35	7:05
Wyoming & Central	6:43	7:13	7:28	7:43	8:13	8:43	9:13	9:43	10:13	10:43	11:13	11:43	12:13	12:43	1:13	1:43	2:13	2:43	3:13	3:43	4:13	4:43	5:13	5:43	5:58	6:13	6:43	7:13
Kirtland East	6:50			8:20	8:50	9:20	9:50	10:20	10:50	11:20	11:50	12:20	12:50	1:20	1:50	2:20	2:50	3:20	3:50	4:20	4:50	5:20	5:50	6:05	6:20	6:50	7:20	
Gate #1		7:20	7:35	7:50																								
Gate #10		7:34	7:49	8:04																								

#### Route 31 from Kirtland East

	A.M.										P.M.										*								
Gate #10																													
Gate #1																													
Kirtland East	7:04	7:19	7:34	7:49	8:04	8:34	9:04	9:34	10:04	10:34	11:04	11:34	12:04	12:34	1:04	1:34	2:04	2:34	3:04	3:34	4:04	4:19				5:34	6:04	6:19	6:34
Wyoming & Central	7:11	7:26	7:41	7:56	8:11	8:41	9:11	9:41	10:11	10:41	11:11	11:41	12:11	12:41	1:11	1:41	2:11	2:41	3:11	3:41	4:11	4:26	4:41	4:56	5:11	5:41	6:11	6:26	6:41
Wyoming & Ind. Schl. Rd.	7:19	7:34	7:49	8:04	8:19	8:49	9:19	9:49	10:19	10:49	11:19	11:49	12:19	12:49	1:19	1:49	2:19	2:49	3:19	3:49	4:19	4:34	4:49	5:19	5:49	6:19		6:49	
Wyoming & Menaul	7:21	7:36	7:51	8:06	8:21	8:51	9:21	9:51	10:21	10:51	11:21	11:51	12:21	12:51	1:21	1:51	2:21	2:51	3:21	3:51	4:21	4:36	4:51	5:21	5:51	6:21		6:51	
Wyoming & Montgomery	7:28	7:43	7:58	8:13	8:28	8:58	9:28	9:58	10:28	10:58	11:28	11:58	12:28	12:58	1:28	1:58	2:28	2:58	3:28	3:58	4:28	4:43	4:58	5:05	5:28	5:58	6:28		6:58
McKinney & Academy								9:12	10:12	11:12	12:12	1:12	2:12	3:12	4:12														
Wyoming & Academy	7:31	7:46	8:01	8:16	8:31	9:01	9:31	10:31	11:31	12:31	1:31	2:31	3:31	4:31	4:46	5:01	5:09	5:31	6:01	6:31									
Wyoming & Krim	7:38	7:53	8:08	8:23	8:38	9:08	9:38	10:38	11:38	12:38	1:38	2:38	3:38	4:38	4:53	5:08	5:25	5:38	6:08	6:38									
Louisiana & Pino	7:42	7:57	8:12	8:27	8:42	9:12	9:42	10:42	11:42	12:42	1:42	2:42	3:42	4:42	5:12	5:35	5:42	6:12	6:42										

Tips for Transfers on Back.

\* 4:35 p.m. trip from K.A.F.B. See Route Map.



## So You've Got a Drunken Guest

No one is telling you not to serve alcoholic beverages at your holiday party. But, these days, lots of people have advice on dealing with the problems that that custom can lead to. The local chapter of the American Automobile Association has a new booklet, "Sober Drivers Have Happier Holidays," that makes a number of important points.

One is that, obviously, you don't *have* to serve liquor at your party. The booklet contains several recipes for non-alcoholic drinks, some of which (it says) don't even taste very non-alcoholic. It also has some recipes for high-protein party foods that will slow down alcohol absorption.

But suppose you do serve liquor and you do end up with guests who over-imbibe and who plan to drive home. What then? It's up to you as the host/hostess to take charge. Here's the AAA plan:

1. Suggest — and strongly — that you (or another, sober guest) drive them home. They can always come back for their car later.

2. Insist that they stay overnight at your home. A bit of inconvenience is a small price to pay for safety.

3. If the guests insist on driving, try to take the car keys away. They may resent it, but if they're too drunk to listen to reason, you have to make decisions for them.

4. If necessary, use physical restraint. It sounds a bit drastic, but a drunk must not be allowed to drive.

True, the first two actions may be a bother, and the last two are certainly distasteful. But remember that, though you may lose a friend for the night, you'll have a better friend — or at least a live one — in the

morning.

One other point, if your party is in Albuquerque from Dec. 21 through Dec. 31, you can call Dial-a-Ride on 884-6611 and have

your drunken guests taken home anywhere in Bernalillo County from 4 p.m. until 4 a.m.

(Copies of the booklet are available by calling AAA at the same number.)

### More Tips from AAA

## How to Keep the Life Of Your Party Alive

1. *If you're going to serve alcohol, always serve food too.* Snacks slow the rate at which the body absorbs alcohol. And high-protein ones, like cheeses and meats, are especially good because they stay in the stomach longer than other foods.

2. *Encourage careful measure of mixed drinks by keeping several jiggers at the bar.* Guests will be less likely to drink too much if they have the means to measure their liquor.

3. *If you serve an alcoholic punch, take the "punch" out.* That is, make it with a non-carbonated base. Alcohol is absorbed by the body much faster when combined with a carbonated mixer. Use fruit juice or tea instead.

4. *Have some non-alcoholic drinks available.* Some guests may prefer them; others may have to avoid alcohol if they're taking certain common medicines. And never call attention to guests who choose not to drink.

5. *Divert attention from the bar.* Station it in an out-of-the-way place. And keep guests circulating with games, conversation, or dancing. Also, set an example yourself — don't overindulge.

6. *Never push drinks on your guests.* The average adult can absorb about one drink per hour. So, although you want your guests to enjoy themselves, don't overdo it — don't rush to "freshen" their

drinks or refill their glasses the moment they become empty. These days, those customs are *not* the hallmark of the gracious host. Too often, guests accept drinks they really don't want to be tempted by just to avoid appearing rude to the host.

7. *Stop serving alcohol about an hour before the party is to end.* Have some coffee or other non-alcoholic beverage available and top off the evening with pizza or quiche or even "breakfast." Remember that neither coffee nor any other drink will help sober anybody up; only time can do that. But by pushing non-alcoholic drinks near the end of your party, you give everyone time for their bodies to absorb the alcohol they've consumed. The lower the alcohol content in their blood, the safer it is for them to drive home.

8. *Keep on the lookout for guests who are drinking too much.* Engage them in conversation or other activities that can slow down the drinking. Offer food. Mix the next drink for them, and make it a light one — and with water rather than a carbonated mixer. If your attempts fail — and they might; drunks are seldom rational — have a plan. (See the other AAA story.)

9. *In short, don't be just a host — be a friend.*

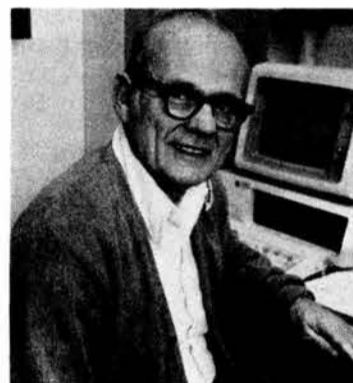
## Retiring



Ciss Kelly (3552)



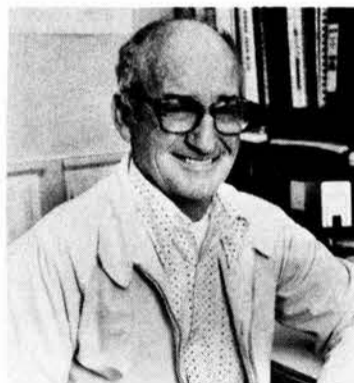
Fred Martinez (153)



Bob Altherr (7475)



Harold Anderson (2513)



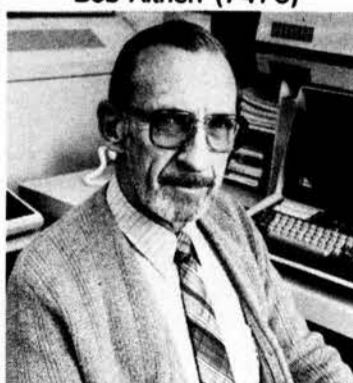
Curly Saxton (7556)



Millie Johnson (7543)



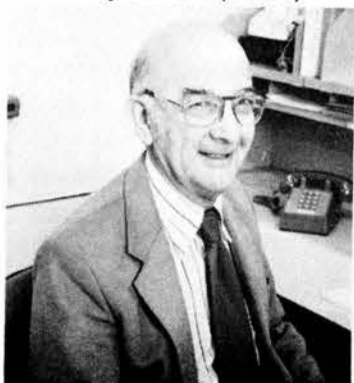
Ed Barber (7472)



Harold Schildnecht (2542)



Bill Caudle (5234)



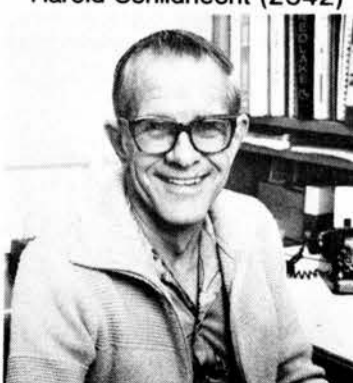
Ken Weidner (7622)



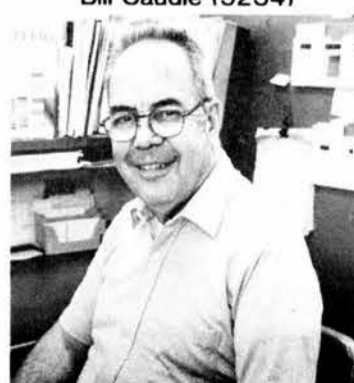
Roy Hunter (154)



Al Hurford (7251)



Billie Pierce (7556)



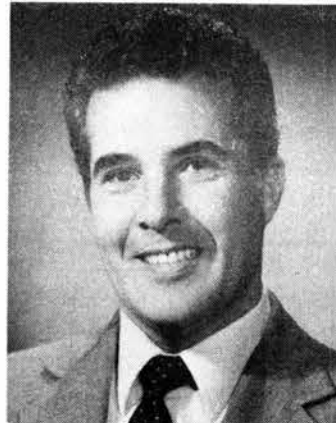
Rudolph Stefoin (3425)



# MILEPOSTS

## LAB NEWS

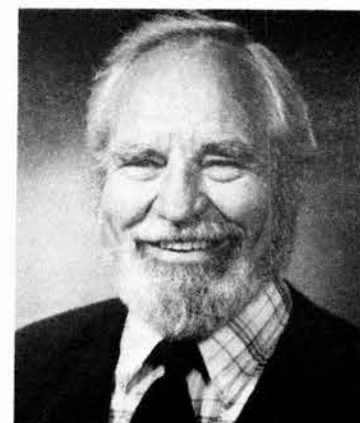
DECEMBER 1984



Ray Chavez (3155) 25



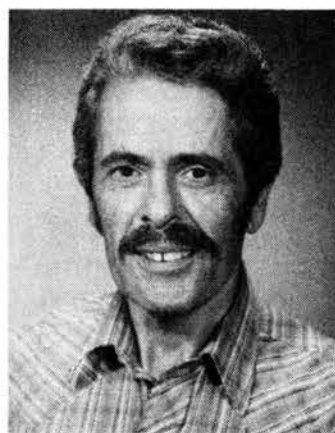
Jake Bernal (3417) 30



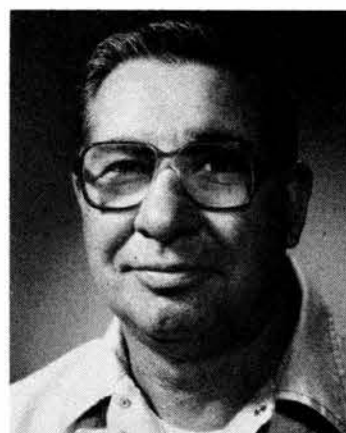
George Hosking (7262) 30



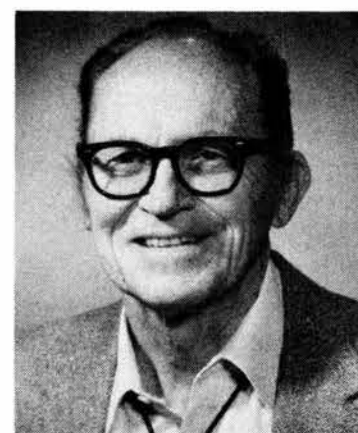
Dolores Carlson (7200) 30



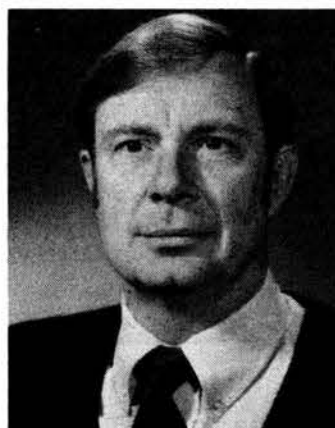
Ralph Pena (3423) 35



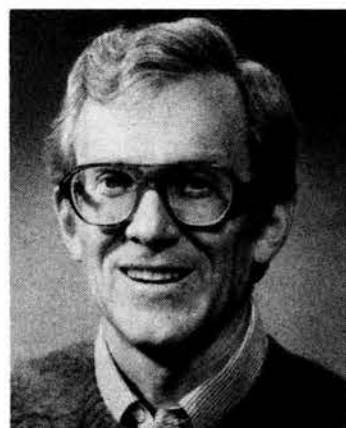
Ernie Marquez (3618) 15



Harold Goddard (7222) 35



David Follstaedt (1112) 10



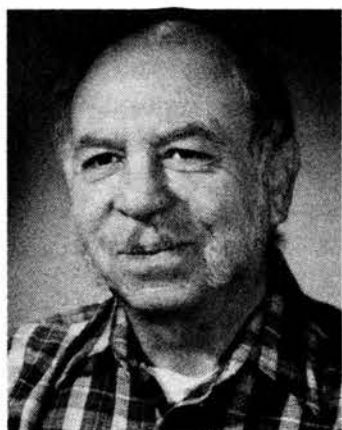
Don Hoke (2513) 25



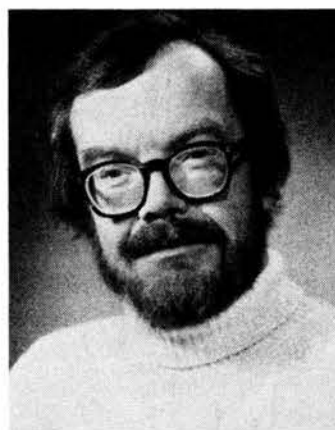
Cecil Tucker (6452) 25



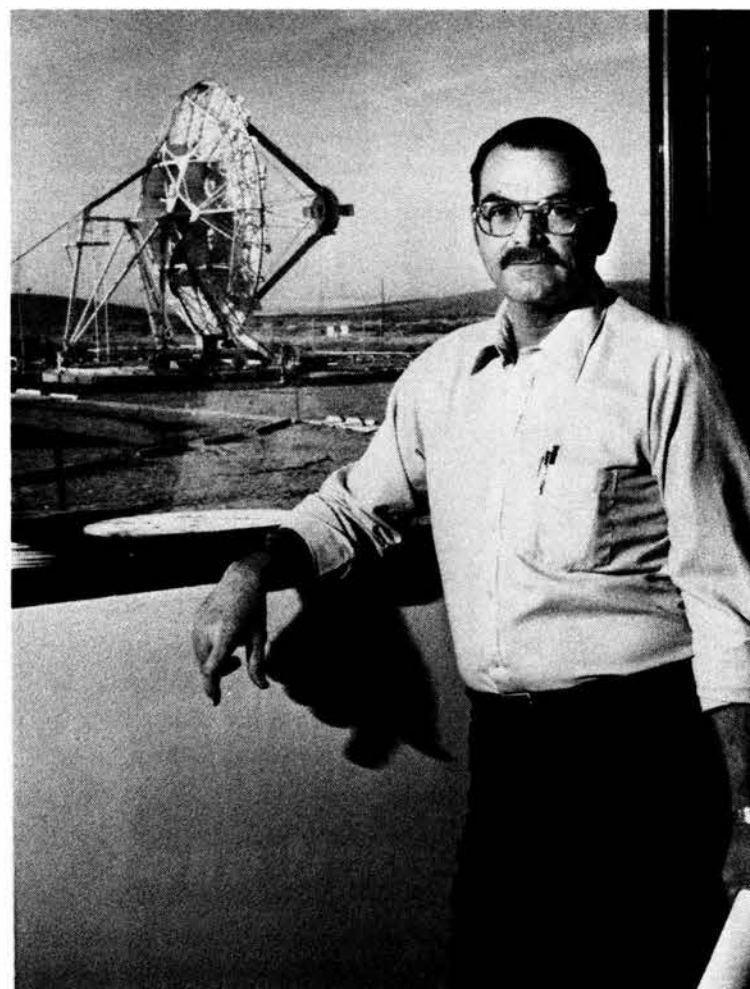
Margaret Crawford (7471) 25



Urbano Salas (3417) 15



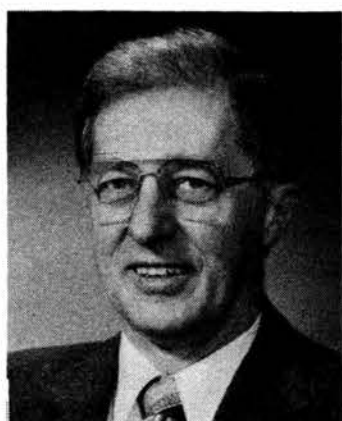
Bill Jacklin (5238) 25



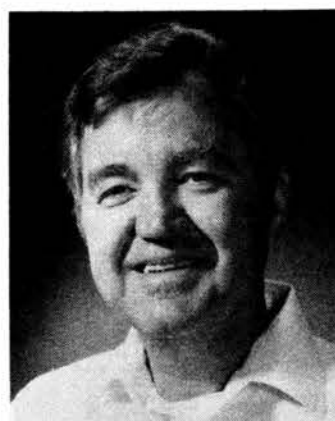
Milt Stomp (6222) 25



Homer McIlroy (3742) 30



Dick Burken (3733) 30



Ed Buksa (7542) 25



# First-Class Postage For Retiree Papers Studied

It may be a first-class paper, but we can't afford first-class postage. That's the result of a recent study of costs associated with mailing the LAB NEWS to retirees.

Sandia would like to get a copy of the paper into the mailbox of every one of its subscribers, retirees and others, on the Friday of publication or at least by that Saturday. After all, the paper is actually printed on Thursdays and delivered to the Postal Service by that afternoon.

But research by Benefits 3543, the people who administer the retiree programs; Mail Services 3154, the people who have to come up with the postage money; their Livermore counterparts, divisions 8024 and 8026; and LAB NEWS 3162 indicates that the increase in cost from the current bulk rate (third-class) postage to first-class postage is simply prohibitive.

Specifically, it now costs about \$10,000 a year to mail the papers out. If we went to first-class for all of you retirees, that cost would more than quadruple. That's too much.

It would also mean a tremendous task for the Mail Room: the folks there would have to manually stuff each paper into an envelope, affix the proper amount of postage (54 cents for the usual 12-page issue; 71 cents for a 16-pager), and then haul the 2600 packages to the Postal Service for distribution.

The group also looked at restricting the first-class treatment to just the Livermore retirees (that is, those who live in California); after all, most recent complaints to reach top management have originated there. The postage costs are smaller (albeit still significant), but no one in the group wanted to field the calls from the Albuquerque-area contingent who would be quick to remind us that they are the ones, not the coast folks, who learn too late of the magnificent performances mentioned in the Events Calendar, the delightful dinners and special shows at the Coronado Club, and the fantastic bargains in the classified ad section. In other words, mailing the paper first class only to Livermore retirees would be most difficult to justify — and Sandia policy is always to treat all groups as impartially

as possible.

All the people involved with the study are — contrary to the impression likely from the above — sympathetic to the retirees' problems. And there are some steps that could be taken that would cost little in terms of either time, effort, or money. One suggestion is to call your local Post Office as soon as your paper is a day or two later than usual; often you'll learn that the regular carrier is on vacation and that the substitute carrier simply didn't have the time to sort the bulk mail (unlike first-class mail, it's perfectly legal to hold bulk mail a few days).

Another suggestion, applicable to those who live in the right places, is to visit either LAB NEWS office (Bldg. 814 in Albuquerque, Bldg. 911 in Livermore) on alternate Fridays and pick up a copy from the supply each office almost always has on hand.

One final note: Twice this fall the LAB NEWS printer has failed to get the paper delivered to the Post Office on Thursday as scheduled. So don't use the delivery dates for the issues of Sept. 14 or Oct. 26 as typical ones.

UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

**Deadline: Friday noon before week of publication unless changed by holiday. Mail to: Div. 3162.**

**RULES**

1. Limit 20 words.
2. One ad per issue per category.
3. Submit in writing. No phone-ins.
4. Use home telephone numbers.
5. For active and retired Sandians and DOE employees.
6. No commercial ads, please.
7. No more than two insertions of same ad.
8. Include name and organization.
9. Housing listed here for sale is available for occupancy without regard to race, creed, color, or national origin.

**MISCELLANEOUS**

- FREE moving boxes and cartons, small to large size, 30 to 50 total, please take all. Goldstein, 821-9531.
- MILITARY multimeters, Simpson PSM-6 \$25; PSM-17 overload protected, \$30; ME-9 (Simpson 250 equivalent) w/HV adapter, \$35. Simmons, 281-3590.
- AQUARIUM; 2 20-gal. tanks, stand, pumps, heaters, filters, gravel, etc., \$40; Bell R/T helmet, 7 1/8, \$15. Russell, 298-0162.
- TEMCO gas heater, 45K BTU per hr. input rating, thermostat control, \$150. Pelletier, 884-3726.
- MACINTOSH computer w/128K, includes Macwrite & Macpaint, no printer, \$1500. Huntington, 836-4109.
- SOFA, queen size, sleeper, earth tone, \$100. Patrick, 265-4569.
- ROLAND MB122A monitor & Hercules graphics card w/software for IBM PC, \$425. Hansen, 266-6922, 898-3173.
- PITCH-BACK, \$15. Mowry, 892-8564, 892-9666.
- TIRES, 2 ea., N-50-15, both \$95. Marchi, 299-8516.
- GARAGE door, 7 x 16, w/hardware, \$50; trade or buy chickens, ducks or grain. Lackey, 898-6638.
- RUGER .44 stainless blackpowder revolver, complete w/powder & all accessories. Brammer, 266-5158.

- MICROWAVE or VCR stand — \$35, portable dishwasher, \$25, small stereo system, \$35. Jones, 299-4776.
- DARKROOM equipment: complete for processing color or B/W, including Omega B-66 enlarger; 35mm SLR Olympus OM-1, body only. Newlin, 898-4613 after 5.
- SKI boots, Dynafit, men's 8 1/2, \$20; skis, Rossignol Meteor 150cm, Salomon 101S bindings, \$15; ski bibs, jacket, ladies 10L, \$30; tire chains, fit P185/75R14, \$15. Hickox, 299-0772.
- SLIDER windows w/screens: 3x3 obscured, \$10; 3x5, \$15; cast bathtub, \$25; rims w/tires (Honda Civic), \$5 ea.; GE washer / dryer set, \$35. Reif, 299-2665.
- TWO sets twin beds, wood, including mattresses, 5-dwr. chest, 3-dwr. chest w/upper bookcase; gas stove. Rodriguez, 883-8424.
- SKI equipment: Olin Mark IV, Look GT bindings, \$50; poles, \$10; size 8 1/2 boots, \$15; bindings, \$15. Hsing, 293-5670.
- FRANKLIN Stove, \$75; Sears washer (needs switch), \$35; F100 rear window, \$15. Horner, 821-0099, 821-1122.
- DRUM SET, 5 Gretsch drums, Paiste cymbals, Tama hardware, chrome, oil filled heads. Holmes, 292-0898.
- TIRES: 5 truck 12 x 15 radials, \$25 ea.; mattress, waterless California King, 1 yrs. old, \$100 OBO. Arana, 299-1214.
- CASIO chord organ w/bar code reader, paid \$500, sell for \$300 OBO. McDaniel, 294-5287.
- TRIVIAL PURSUIT game, never opened, \$15. Hawkinson, 281-1281.
- TELEVIDEO 910 terminal & 1200 baud smart modem, 2 mos. old, \$900. Troncoso, 897-1167.
- 16K memory for VIC20, \$50; burglar alarm system, wired or wireless, \$100; Radio Shack telephone answering machine, \$60. Siemers, 296-0651.
- MOVING BOXES, cardboard, used: 9 record / book size, 50 cents ea., 9 dishpack, \$2.50 ea., or all for \$25. Smith, 243-0714.
- VACUUM, Sears 3.2hp Powermate w/all attachments, 1 yr. old, paid \$230, sell \$175. Caskey, 296-6372.

- HP 326A card reader, \$200; Radio Shack wireless phone, \$50; dialer / timer, \$30; electric directory, \$15; X/K radar detector kit, \$10. Wahlenmaier, 255-7994.
- MAYTAG model A106 washer, used 3 yrs., \$150. Olson, 298-3795.
- X-C ski racing shoes for Salomon bindings, size 8 1/2-9, orig. cost \$89, \$45 OBO. Maloney, 821-6661.
- WOMEN'S 3-spd. bike; fp screen; bathroom mirror w/cabinet. Peters, 293-6356.
- ELECTRIC guitar, Memphis Jr., re-tails \$119.95, \$55; child's RCA record player, 3 3/4 & 45 RPM, \$15. Petruno, 265-1826.
- PAIR of lamps, hand-painted off-white ceramic, 30" tall w/shades, \$25/pr. Burstein, 821-6688.

**The next LAB NEWS will be published Jan. 18. Deadline for that issue will be 12 Noon, Jan. 11**

- FIBERGLASS cargo trailer for compact cars, box 36Wx22Hx45L, trailer 51Wx36Hx76L, locking lid, 16" tires, lights, \$250 OBO. Sena, 298-1554.
- ROYAL portable typewriter, Medallion II, \$90 OBO. Garcia, 298-7340.
- COMPUTER monitor, green monochrome for Commodore 64, \$75; classical guitar, never used, value \$400, price \$200. Mora, 821-6759.
- WOODEN clarinet, \$125. Zanner, 281-1789.
- COUCH & matching chair, recently upholstered, blue / green pattern, \$60. Barton, 268-7349.
- CUSTOM DRAPES, lined, 2 pr., 80" W x 60" L, \$35; spread, queen, velour, \$10; carpet, shag, 20 sq. yds., \$20; all matching orange gold. Luikens, 881-1382.
- PIONEER SX-434 stereo receiver, 30W, \$50; acrylic sheets for storm windows or greenhouse. Magnuson, 821-5330.

- KENMORE zig-zag sewing machine, 10 yrs. old, \$100; one stereo speaker & cabinet, \$10. DeLollis, 299-5384.
- MATTRESS, king size, box springs, spread; sofa, loveseat, dark pine tables, brass Stiffel lamps; 8' toboggan. Greene, 293-6419.

**TRANSPORTATION**

- '77 VW van, 9-pass., new paint, new tires, \$3600 negotiable. Armstrong, 298-4526.
- 20" bicycle, \$75; amber glass pole lamp, \$50. Widman, 293-7279.
- '66 1/2 ton pickup w/shell & tool box, white, new engine & paint in 1976, one owner. Mora, 881-2150.
- '79 PONTIAC Firebird, one owner, new tires, stereo, louvers, below book, \$3900 OBO. Gallegos, 345-7147, 344-3290.
- '73 MGB conv., white, wire wheels, AM/FM cassette. Hickox, 299-0772.
- '83 FORD Ranger, 4-cyl., 2.3 liter, AC, PS, 4-spd., radio, tool box, \$6700 OBO. Grav, 268-0144.
- '76 PORSCHE 914, 2 liter, AM/FM/cass., AC, 50K miles, \$5200. Gibson, 298-9170.
- GIRL'S single speed bicycle, \$25. Gronseth, 299-3540.
- '76 OLDS Cutlass Brougham, fully equipped, book value \$2200, sell for \$1700. Arana, 299-1214.
- '73 CADILLAC Sedan De Ville, 97K miles, \$1200 OBO. Garcia, 298-7340.
- '79 DATSON 280ZX, AT, AC, AM-FM, 64K miles, \$7300. Smith, 281-2940 after 5.
- TANDEM BIKE, 26", red w/chrome fenders; Atari 5200 plus games. Smith, 294-3413 after 4:30.
- '82 SUZUKI GS650GLZ, 1300 miles, windshield, rack, new battery, \$1800 OBO. McCaughey, 822-0325.
- COLUMBIA, man's 26" 3-spd. bicycle, blue, \$50 OBO. Burstein, 821-6688.
- '74 CHEVELLE Laguna, one owner, 72K miles, 400 cu. in. V8, loaded w/options. Peters, 293-6356.
- '78 CAMARO LT, low mileage, below book, \$3500. Hansen, 898-3173.

- '73 DATSON 240Z, 4-spd., AC, bra, louvers, Alpine stereo AM-FM cassette, Goodyear T/A radials, \$4000 OBO. Longfellow, 299-7062.
- '77 PONTIAC Sunbird, one owner, 38,300 miles, \$2250 book value. Hartenberger, 256-3203.

**REAL ESTATE**

- SE 1-bdr. condo, pool, jacuzzi, laundry, security, assumable 11% fixed, \$29,500 / trade equity for 2-bdr. house. Mattson, 842-1453.
- 3-BDR., den, sunroom, 2000 sq. ft., near Eubank & Const. w/8% assumable, \$79K. Caruthers, 296-5953.
- MH, 14 x 64 3-bdr., 1 1/2 bath, located in family park, 10.75% assumable. Welk, 822-8372.
- '83 MH, 14x70 3-bdr., 2 bath, assume loan plus down, \$17K, set up in Meadowbrook Park. Prusak, 821-2816.
- NO down/qualifying, new 2-bdr. mountain house on 2.5 acres, views, immediate closing, \$80K owner / contractor flexible. Kimberling, 281-2202.
- CEDAR CREST heavily wooded 2.2 acres in Ponderosa Ranch Estates, 2.5 miles north of Bella Vista. Mora, 821-6759.

**WANTED**

- VIC Commodore 64 computer w/single floppy, printer, & TV interface. Leisher, 281-5258.
- BEAGLE female pup. Burns, 821-0645.
- MOVING space for small misc. tools, chairs, clothing to York or Mannheim, Penn. Harris, 255-6577.

**WORK WANTED**

- JR. SKI Patroller will tune skis; 4 yrs. experience, pick up & delivery from C. Club parking lot after work, \$15. Lassiter, 299-1492.

**LOST**

- LADIES brown boots, removed from East gym on 11/29; reward offered, Quintana, 7:30 a.m.-4 p.m., 844-6857.



## Christmas Holiday Starts Tonight

TONIGHT, right after work, start your 11-day holiday break at the Club. There'll be a spread of munchies and goodies, Robin Arquette entertaining, good cheer, and much well-wishing for a happy holiday. The Club will be closed from tomorrow through the holiday period until the New Year's party on Dec. 31.

SPEAKING OF NEW YEAR'S EVE, call the Club office *right now*, 265-6791, to find out about reservations. The Club is welcoming 1985 in grand style. Spinning Wheel plays upstairs; Linda Cotton, downstairs — a couple of fine entertaining groups. Hats, horns, favors, and noisemakers are part of the package for ringing in 1985. Breakfast is served at 12:30 a.m. The price is \$16 for member couples, \$20 for guest couples, and includes a bottle of bubbly.

THE RETIREE special interest group meets Monday, Jan. 7, at 2 p.m. at the Club. This will be a continuation of previous organizational efforts and a planning session. All retirees are invited.

OTHER EVENTS in early January include a couple of Friday nights for special dining and a Variety Night.

On Friday, Jan. 4, the Isleta Poor Boys return to the Club to play their own special brand of country western music. The dining room features filet mignon, two-for-one, for \$11.95.



A TOAST for a happy new year is made by the Coronado Club officers — Bruce Davis (2300A), treasurer; Frank Biggs (7112), president; Tom Mehlhorn (1265), vice-president; and Terry Holovka (1250), secretary. The Club's calendar for 1985 will be expanded and filled with events and activities for its 2700 member families — up more than 400 over last year's membership.

Together, a variety group, plays for dancing on Friday, Jan. 11, and the dining room has another two-for-one special — prime rib, two for \$11.95.

Variety Night is scheduled on Saturday, Jan. 12, and features a movie called "The Rescuers." Food service starts at 5 p.m.; the movie at 6. Admission is free to members and families.

CORONADO SKI CLUB meets Tuesday, Jan. 15, for its usual evening of merriment and business starting at 7 p.m. Speaker for the occasion is Ray Deveaux, Taos Ski Valley Avalanche Control, who will discuss avalanches, naturally, and tell you why they shoot off rockets and what an "avalanche dog" does. Naturally, there will be door prizes. The ski movie will highlight Lake Tahoe in Nevada.

## Fun & Games

**X-C Skiing** — If you've discovered cross-country skiing (or plan to soon) and you'd like a bit of companionship along the trails, then you're ready for the NM Ski Touring Club. Its members (mostly Sandians) join for one-day car trips, overnights, and a bus trip or two throughout the winter. The group also has an active "teach the beginners" program. The next meeting of the group is Jan. 10, but several trips are planned for the Christmas break. For more info, call Linda Tripp on 255-6221, Susan Hale on 892-2151, or Ken Benson on 294-1658.

\*\*\*

**Downhill Skiing** — For a \$15 donation, the American Lung Association and KOB radio are again offering this winter a Ski Privilege Card. It's good for a free lift ticket at each of six NM ski areas: Angel Fire, Red River, Rio Costilla, Sugarite, Sipapu, and Cloudcroft. The cards make great last-minute stocking stuffers, and all the money goes to the Association's fight for clean air and lungs. More info from 265-0732.

## Call UNICEF TO Help

If you'd like to find out how to help the victims of the Ethiopian famine, call UNICEF's emergency phone number: 1/800/826-1100.

## Welcome

### Albuquerque

Paul Apodaca (3426)  
Kathleen Barnes (22-2)  
Patricia Crotty (2644)  
Catherine Hoven (7613)  
Amy Martin (3426)  
Carlos Medrano (3632)  
Richard Mills (5261)  
Theresa Oleksiew (21-1)  
Angela Padilla (21-1)  
Donald Pierce (2155)  
Joseph Romero (1822)  
Betty Street (22-2)  
Lori Williams (2113)

### California

Donald Gerber (2142)  
Bruce Hammel (1273)  
Daniel Neal (1128)

### Colorado

Jean Sherlin (21-1)

### Illinois

Grant Sander (2345)

### Maine

Gary Jones (7256)

### Nevada

Arvil Rhinehart (7135)

### New Mexico

Janet Finch (1245)

### Ohio

Jeffrey Haas (7483)

### Oregon

Joe Chiu (7253)

### Texas

Henry Harjes (1252)  
Thomas Sanders (6323)  
David Wesley (7256)



Here are a couple of current volunteer opportunities for employees, retirees, and family members. If you would like more information, call Karen Shane (4-3268).

**MARTINEZTOWN HOUSE OF NEIGHBORLY SERVICE** is a meal site for the elderly and a community center for all ages. This United Way agency has several do-it-yourself projects: a trophy cabinet needs to be built, a piano needs refinishing, and general repairs (work for carpenters, masons, painters) on the House are needed.

**CHACO CENTER OF THE NATIONAL PARK SERVICE** (at UNM) needs assistance in producing black and white photos from 35 mm negatives.